REMARKS

Claims 1-4 are pending. Claim 1 is amended herein, and therefore claims 1-4 remain for consideration.

Applicants respectfully request reconsideration of the finality of the outstanding office action. In a telephone conference with the Examiner, Applicants' Counsel questioned the finality of the Office Action. The Examiner stated that the amendments made to claim 1 and presented in our response filed on June 26, 2003, overcame the rejections based on JP 9-3581. The previous search made by the Examiner, however, failed to include all of the relevant areas of the art. A new search uncovered the Sainfort reference, which the Examiner relies on to make the instant rejection final. Because the presentation of the Sainfort reference was not necessitated by Applicants' amendment of the claims or based on information submitted with the amendment, the finality of the Office Action is premature and should therefore be withdrawn.

Claim 1 is rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Sainfort et al. (U.S. Pat. No. 5,837,070). The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendment to claim 1.

Sainfort et al. is directed to aluminum alloy sheets for use in mechanical, aircraft, and spacecraft construction. The sheets are not formed by hot-forging, but rather by vertical plate casting, hot rolling, cold rolling, heat treating, cold water quenching, precipitation hardening, and/or tempering. (Col. 3, lines 16-21). These sheets are made from alloys having by weight 6.5% to 11% Si and less than 0.8% Cu, as well as other constituents. (See Col. 2, lines 35-43). In such alloys, "[t]he copper content must be limited to 0.8% in order to avoid the formation of insoluble Mg_2Si and Q (AlMgSiCu) phases." (Col. 2, line 67 to Col. 3, line 2).

The present invention as set forth in amended claim 1, on the other hand, recites a method of manufacturing a lightweight high-strength member such as a suspension part for an automobile, comprising the steps of pouring molten metal of an aluminum alloy containing by weight, 4.0 % to 9.5 % Si and 0.8% to 1.3 % Cu into a mold to cast a preform, and hot-forging the preform by use of a forging die to form a final formed product.

For an anticipation rejection to be appropriate, each and every element or limitation in a rejected claim must be disclosed in a single prior art reference used in the claim rejection. Because Sainfort et al. does not teach or suggest a method of

manufacturing a lightweight high-strength member by hot-forging, or by a method including pouring molten metal of an aluminum alloy containing by weight copper in a range from 0.8% to 1.3%, it cannot be maintained that Sainfort et al. anticipates amended claim 1 of the present application.

Claims 3 and 4 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sainfort et al. (U.S. Pat. No. 5,837,070). Claims 3 and 4 each ultimately depend from and thereby incorporate the limitations of claim 1. The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendment to claim 1.

As mentioned above, Sainfort et al. contains inadequate teaching to anticipate amended claim 1. Because claims 3 and 4 each ultimately depend from and thereby incorporate the limitations of amended claim 1, the teaching of Sainfort et al. is also deemed inadequate to render claims 3 and 4 obvious.

Claims 1, 3 and 4 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over JP 9-3,581 in view of Sainfort et al. (U.S. Pat. No. 5,837,070). The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendment to claim 1.

JP 9-3,581 is directed to a forged aluminum product with high fatigue strength. The forged aluminum product has a structure in which a primary-crystal dendrite is divided by electromagnetic stirring or mechanical stirring and then grown as individual grains. The spaces among the grains are filled with eutectic Si. The primary-crystal dendrite is then hot-forged at, preferably, 350-540 degrees C to homogenize the structure and composition of the forged aluminum product. Additionally, T6 heat processing can be applied to the forged aluminum product.

JP 9-3,581 does not teach or suggest a method of manufacturing a lightweight high-strength member including the steps of pouring molten metal of an aluminum alloy containing by weight, 4.0 % to 9.5 % Si and 0.8% to 1.3 % Cu into a mold to cast a preform, and hot-forging the preform by use of a forging die to form a final formed product, as recited in amended claim 1 of the present application. On the contrary, the Japanese reference discloses an aluminum alloy containing 6.5 – 8.0% Si combined with 0.2 – 0.6% Cu (example 1), and an aluminum alloy containing 10.0 – 13.5% Si combined with 0.5 – 3.5% Cu (example 2). See JP 9-3,581, paragraphs 0005 and 0007. Neither example contains percentages of both Si and Cu that touch, overlap or are within the ranges as recited in amended claim 1 of the present application. The range of Cu in example 1 is less than the claimed range, and the

range of Si in example 2 is greater than the claimed range. In sum, JP 9-3,581 does not disclose pouring molten metal of an aluminum alloy with percentages of both Si and Cu in the ranges of amended claim 1.

As mentioned above, Sainfort et al. is directed to aluminum alloy sheets for use in mechanical, aircraft, and spacecraft construction. The sheets are not formed by hot-forging as recited in claim 1 of the present application, but rather by vertical plate casting, hot rolling, cold rolling, heat treating, cold water quenching, precipitation hardening, and/or tempering. (Col. 3, lines 16-21). Moreover, Sainfort et al. does not teach or suggest a method of manufacturing a lightweight high-strength member by a method including pouring molten metal of an aluminum alloy containing by weight copper in a range from 0.8% to 1.3%. In fact, Sainfort et al. teaches away from the claimed range of weight of copper, because Sainfort et al. states that the percentage of copper by weight is less than 0.8% (see Col. 2, line 44) and that "[t]he copper content must be limited to 0.8% in order to avoid the formation of insoluble Mg_2Si and Q (AlMgSiCu) phases." (Col. 2, line 67 to Col. 3, line 2).

In other words, JP 9-3,581 and Sainfort et al. taken either alone or in combination do not teach ranges of both Si and Cu that touch, overlap or lie within the ranges recited in amended claim 1 of the present application. Moreover, the ranges taught in JP 9-3,581 and Sainfort et. al teach away from the claimed ranges. It therefore cannot be maintained that the teachings of JP 9-3,581 and Sainfort et al. taken either alone or in combination render amended claim 1 obvious. Moreover, because claims 3 and 4 each ultimately depend from and thereby incorporate the limitations of claim 1, these dependent claims are likewise deemed unobvious for at least the reasons set forth for claim 1.

Claim 2 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over JP 9-3,581 in view of Sainfort et al. (U.S. Pat. No. 5,837,070) and further in view of Drury et al. (U.S. Pat. No. 5,211,216). Claim 2 depends from and thereby incorporates the limitations of amended claim 1. The rejection is traversed and reconsideration is respectfully requested, particularly in view of the clarifying amendment to claim 1.

Drury et al. is directed to a squeeze casting process to produce metal castings having superior mechanical properties. The process is particularly adapted for use in a vertical casting machine and is characterized by vacuum ladling, vacuum evacuated mold cavities, low metal temperatures, small metal feed gates and high

gate velocities, application of high metal pressure on the metal filled cavity through the feed gate, and short processing times. When applied to aluminum alloy casting the squeeze casting process produces metal castings that can be heat treated at high temperatures to improve their mechanical characteristics. Apparently Drury is cited by the Examiner for discussing pressure casting of molten metal at a pressure of at least 39 Mpa.

However, Drury et al. does not teach or suggest a method of manufacturing a lightweight high-strength member comprising the steps of pouring molten metal of an aluminum alloy containing by weight, 4.0 % to 9.5 % Si and 0.8% to 1.3 % Cu into a mold to cast a preform, and hot-forging the preform by use of a forging die to form a final formed product, as recited in amended claim 1 from which claim 2 depends. In other words, Drury does not materially add to the teachings of JP 9-3,581 and Sainfort et al. to render claim 2 obvious.

In view of the foregoing, it is respectfully submitted that claims 1-4 are allowable. All issues raised by the Examiner having been addressed, an early action to that effect is earnestly solicited.

No fees or deficiencies in fees are believed to be owed. However, authorization is hereby given to charge our Deposit Account No. 13-0235 in the event any such fees are owed.

Respectfully submitted,

By Daniel G. Mackas

Daniel G. Mackas
Registration No. 38,541
Attorney For Applicants

McCORMICK, PAULDING & HUBER LLP
CityPlace II, 185 Asylum Street
Hartford, CT 06103-3402
(860) 549-5290